

SWBAT: calculate electrical power

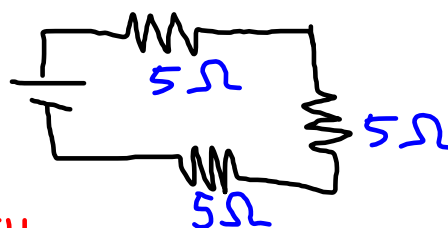
Jan 4-7:20 AM

Welcome!!!

H. Leslie Grebe

SECA Physics
Thursday 10 March 2016

- * Pick up:
 - slip of paper (for later)
 - yellow concept sheet



Opening Questions:

ONE PATH

Is this a series or parallel circuit? How much total resistance would you guess there is?

Centering

Sep 7-7:04 AM



Mystery Resistor - extra credit

- You may work alone or with at most one other person of your choosing.
- Get a "Mystery Resistor" labeled with a letter from Leslie
- Use the same equipment that our teams used in class. Take measurements that will allow you to calculate the resistance (in Ohms) of your resistor.
- You may work when there is spare time in class or arrange other time with Leslie.

Due by 3:00 Friday 3/18

Jan 19-7:12 AM

Concept sheet: 6 rows total

Concept	Meaning	Symbol	Units	Analogy
CHARGE	PROPERTY OF PROTONS & ELECTRONS THAT CAUSES ATTRACTION & REPULSION	q	COULOMBS C	
VOLTAGE =ELECTRIC POTENTIAL	POTENTIAL BASED ON POSITION IN AN ELECTRIC FIELD "PUSH"	V	VOLTS V $V = \frac{J}{C}$	-PERSON -PEDALING \Rightarrow THE PUSH
CURRENT	THE FLOW OF ELECTRIC CHARGE $= \frac{\text{CHARGE}}{\text{TIME}}$	I $I = \frac{q}{t}$	AMPERE A $1A = \frac{1C}{s}$	-WHEEL -CHAINS MOVING
RESISTANCE	OPPOSITION OF CURRENT "AGAINST THE FLOW"	R	OHMS Ω	BRAKES
OHM'S LAW	VOLTAGE = CURRENT TIMES RESISTANCE	$V = I \cdot R$	V $= I \cdot \Omega$	HOW HARD YOU PEDAL? BRAKE AFFECTS SPEED
POWER	AMOUNT OF WORK IN A CERTAIN TIME $= \text{CURRENT} \times \text{VOLTAGE}$	$P = I \cdot V$	WATTS W	

Feb 23-7:34 AM

Power in Appliances!

$$\text{Power} = \underline{I} \cdot V = \text{CURRENT} \times \text{VOLTAGE}$$

↳ MEASURED IN WATTS

What's a kW? KILOWATTS = 1000 WATTS

- * Can work with one other person.
- * Get one appliance all the way done for sure
Try to get 2 done!
- * Can do more on the back for extra credit.
- * Help each other understand. Ask if still confused.

	P	V	I	R
LAB.	O	O	X	X
CAU	X	X	O	O

Mar 21-7:21 AM

What did you find?

TOASTER 800W \$13.44

SPEAKERS 5W 8¢

PENCIL SHARPENER 100W \$1.68

IRON 250W \$4.20

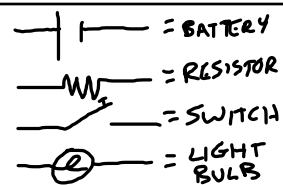
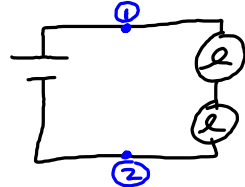
Mar 10-8:55 AM

What did you find?

SPEAKERS	5 W	8 ¢
HAIR DRYER	1500 W	\$25.20
MIXER	100 W	\$1.68
RAZOR	5.4 W	9 ¢
IRON	250 W	\$4.20
TOASTER	800 W	\$13.24

Mar 9-8:33 AM

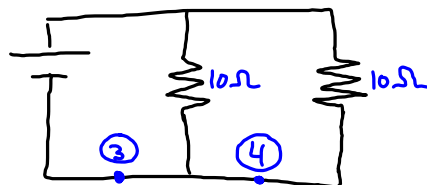
Circuit Puzzles: Predict, explain, observe



WILL THE CURRENT BE THE SAME AT ① & ②?

Observation: 0.45 A on both spots

Explanation: One path, one wire, all electrons flowing same speed



WILL THE CURRENT BE THE SAME AT ③ & ④?

Observation: 1.80 A at (3) and 0.90 A at (4)

Explanation: All moving electrons need to use the wires closest to the battery. But the electrons don't need to go through both resistors! So some through each path.

Mar 23-7:45 AM

Daily 3 Questions

- * Every day except test/project days
- * 3 Questions on the topics of the day
- * Main source of daily points
- * I am happy to give credit when I have no concerns about someone giving or getting help with the answers.

You can't get your points if you don't have your **NAME!!!**

Name	Period
1.	
2.	
3.	

Sep 9-7:32 AM

1. Power = current x $\frac{\text{VOLTAGE}}{V}$
 $I \cdot V$

2) What are the units for measuring power?

WATTS W KW

3) Which costs more to run for a week: a ~~dryer~~ **TOASTER** or speakers? **TOASTER**

Feb 18-6:59 AM